BOOK REVIEWS

Physics—Part 1 *and* 2

Edited by David Halliday and Robert Resnick.

Wiley Eastern Private Ltd., New Delhi, Price Rs. 13.50 per volume.

This book has been published with the assistance of the joint Indian American Text Book Programme and is a carefully revised and expanded edition of the authors' famous text book "Physics for Students of Science and Engineering "first published in 1969".

The first volume contains Mechanics, Fluid Statics and Dynamics, Gravitation, Heat and Thermodynamics and the second volume contains Magnetism, Electricity and Light. The mathematical level in these volumes assumes the knowledge of a first course in Calculus. In specific problems vector algebra has been used, whenever this has been proved very fruitful. The authors have tried to reveal the underlying unity of the different branches of Physics. Throughout the text they have used wave picture, resonance etc. in Mechanics, Sound, Electromagnetism, Optics and Atomic Physics. They have discussed the limitations of the classical theories and introduced new ideas applicable in a broader domain. In fact the authors have preferred the topics and examples with modern flavour, wave-particle duality, the undertainty principle, the complementarity principle and the correspondence principle, etc. The book contains some excellent tables of some fundamental and derived constants, terrestrial data, solar system, fundamental particles etc. Large number of theoretical and numerical problems, with a wide choice of level of difficulty and area of interest, have been provided at the end of each chapter.

This book has no chapter on Nuclear Physics which would have been very useful to the students for which it is meant.

The book may be considered as an excellent reference book for students of degree course of our universities and should be considered as an asset to every library.

P. K. B.

Phase Transformation

American Society for Metals

Seminar Coordinator—H. I. Aaronson

Park Ohio, Seminar held October 1968, Published 27.8.70.

Price 24.7/- pp. 632.

The publication is the outcome of a seminar on phase transformation organized by the American Society for Metals in 1968. Phase transformation is a phenomenon which is of interest not only to the metallurgists but also to the geologists, chemists and solid state physicists. In view of its importance in understanding the properties of materials, and also this phenomenon being of interdisciplinary nature, the publication of the book is an welcome addition in this field. The crystallography of martensitic transformation has been elucidated by the efforts of a very active group of scientists mainly during the last two decades. Similarly an insight into the mechanism of diffusion and nucleation involved in such phase transformation has also been developed through the continuous efforts of a large number of active research workers. Articles presented in the book deals with the studies on the crystallography, the kinetics and nucleations of the various types of phase transformations, e.g., martensitic, bainitic, massive transformation, order disorder transformation etc.

The book discusses the recent experimental results on phase transformations and compares these results with the predictions of the theories. The articles clearly show that though in a number of cases the quantitative agreement between the two is quite impressive, there are a few cases of disagreement and the complete understanding of the basic principles leading to phase transformation is still to be reached. The authors have taken care to discuss these areas of disagreement and in some cases indicated the directions which the experimentalists should focus their attention for the development of the theories. While presenting the experimental results, the authors of the articles have reproduced a number of surface reliefs and electron micro-graphs which are very spectacular and impressive. The articles also contain a very useful list of references which are almost up to date. Though the book is meant to benefit the active research workers in this field, the new entrants in this field will also benefit by this almost exhaustive list of references.

The printing and the reproduction of the photographs are excellent. The book will certainly be a very useful addition to any modern library. The American Society for metals is to be congratulated for bringing out such an elegant and useful publication on an interdisciplinary topic like the phase transformations.

R. K. S.